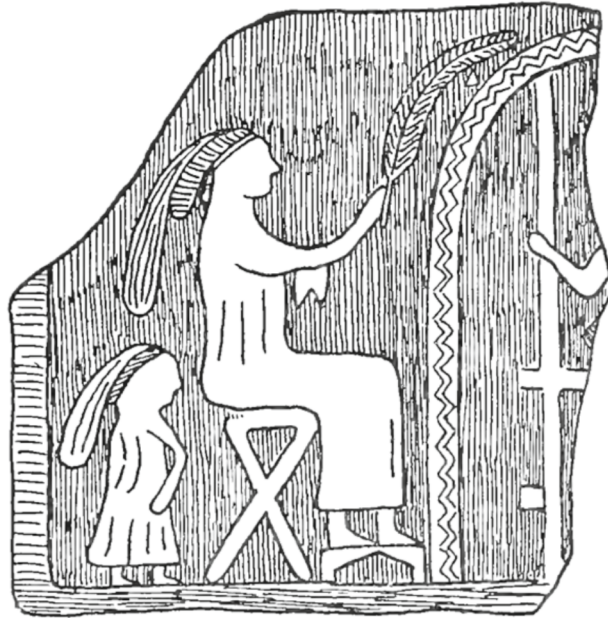


AJĀL آجال

A Quarterly for Ancient Libyan and Afro-asiatic Cultures
Published by al-Arabiya Books & C.C.S
Volume 1, Issue 1 - Spring 2024



- **Rock Art and Holocene Landscapes in the Wadi al-Ajal**
- **The Petroglyphs of Jebel Uweinat, Many Questions and a Few Answers**
- **Language and Writing Systems in Ancient Libya**
- **Libyan Tribes and Ancient Egypt... A Relationship of Major Questions**
- **Sequence Dating and Predynastic Chronology**



The Woman of Ghadames

This impressive rock carving (O. Bates, *The Eastern Libyans, an Essay*, 1914, 128) was discovered in the Libyan city of Ghadames, thus the panel's name. It dates back to the late era of the new kingdom of Egypt (1292- 1077 BC). There is some debate about the story behind the figure; some say it shows a weaver working on a loom, while others believe it is a woman styling her hair before a mirror, showcasing the intricate hair styling practices of Libyan women at that time. This artwork offers a valuable insight into the daily lives and cultural customs of ancient Libyan society.

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In cooperation with the Afro-asiatic Studies Circle



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Editorial Foreword

The title AJAL holds a key significance in linguistic accuracy and also in the context of the Sahara and its profound transformations. The Arabic word *ajāl* means *past dates* but it is also the name of one of the most famous great valleys in the Sahara Desert (wadi al Ajal); A great example that stretches back from geological eras, to ancient Stone Ages, passing through a long progression of historical periods, until it became a scene that embraced the emergence of the Garamantes kingdom in the Sahara. Here we are, inspired by this term to be the title of a quarterly periodical concerned with ancient Libya and the related civilizations, with a focus on the Libuphœnician period in North Africa and the Mediterranean during classical antiquity, and related Egyptian, Greek and Roman civilizations and the kingdoms of Numidia, Mauritania Tangier, Mauritania Caesarea, and of course the Sahara.

This per se is not an easy aim given the scarce state of Arabic periodicals, and publications in general, in the fields of prehistory and archaeology. Indeed, establishing a robust presence in Arabic language periodicals and publications within such fields can pose a considerable challenge, for if it is not as accurate as required, it would make the scene more complicated.

The second primary aim is terminological reconciliation and unification of the vocabulary used, due to the discrepancy and imparity between historical records till the mid-twentieth century and renewed data. This is an issue that lies deep in scientific research and leads to problematic conclusions, as well as that restoring and reorganizing this basis is much more difficult.

Ajal's team will also discuss the relationship of civilization transformations in North Africa to what is called the "Afro-asiatic cradle" that arose in Sumer and Egypt, with its two historical geographical basins; Near East and S.W. Asia, and North Africa and the Sahara; It is the space in which the first civilizations in the world were born and had practiced the experience of non-regressive cultural development, it is also the space to which Ancient Libya belongs.

Then there is the necessity to rely methodically on the approaches of various related fields with a interdisciplinary approach in which the results of archaeology, paleoecology, geomorphology, anthropology, ethnography, historical geography, the study of ancient languages, and other fields converge, in addition to scientific applications such as radiocarbon dating, DNA analysis and paleogenomics, where different disciplines come together with one goal: to give archeology the ability to recover the past with vivid intensity. Absolutely, interdisciplinary approaches are crucial in archaeolo-

gy for gaining a comprehensive understanding of the past. By integrating findings and methodologies from these diverse fields, archaeologists can construct more holistic narratives of Ancient Libya and enhance their ability to reconstruct the complexities of past societies with greater clarity and depth.

North African experiences in archeology and prehistory studies benefit in general from the records and main conclusions of Egyptology and African archaeology, and their Mediterranean counterpart, in studying the features of Ancient Libya; These experiences led to the general features that form a cohesive body called Libyology, knowing that the archaeological records in North Africa, with the classifications, evidence, tools, documents, and capabilities they contain, are as they are, appear to be methodologically independent in terms of their origin and development, among its counterparts in the east, south and north, although it is closely linked to them in major paths and narratives.

This, in general, is the framework that marks the nature of Ajal journal, and the dimensions to anticipate, knowing that the only references we listen to are essentially “silent materials” that do not tell much, but that few they tell us is truly astonishing, and undeniably true. “The stone does not lie,” the late professor A. F. Khushim said, “no matter how we turn it, no matter how much we change the angles that it could be seen through”!

Finally, I express my gratitude to the Ajal team, M.D. A. al-lammoshi, the CEO of al-Arabiya Books, along with the distinguished members of the Advisory Board: Mohamed Duwaib, Mohamed Jarrari, Abdel-Hafidh al-Mayar, Mohamed Issa, Kamal Arzaiq, al-Siddiq Boudwa-ra, al-Sharif Hamed, and Ahmed Saad Emrage. I also wish to commend the translation team for their exceptional cooperation, and express my appreciation to Issam al-Abaidy for his technical supervision, alongside all others involved in the successful launch of the journal.

Thank you all for your support.

A. Mahjoub

The Petroglyphs of Jebel Uweinat

Many Questions and a Few Answers...*

András Zboray

Introduction

Jebel Uweinat and its environs, lying in the centre of the aridest part of the Libyan Desert (Eastern Sahara) at the convergence of the borders of Egypt, Libya and Sudan (Fig. 1), contains one of the most prolific concentrations of prehistoric rock art in Northern Africa. According to the last published count (Zboray 2009) there are 720 sites scattered about the mountain and the surrounding smaller massifs. Of these, 414 sites contain paintings and 347 petroglyphs, with an overlap of 41 sites containing both.

Recent comprehensive publications (Le Quellec 2009; Zboray 2012) focused mainly on the paintings, on account of their artistic appeal and much finer execution, allowing for a more detailed study and conclusions. The evidence from the paintings demonstrate that the peak of occupation at Uweinat and the surrounding area was during the time of the cattle pastoralists, with 337 (81%) of the painting sites depicting cattle or humans in the Uweinat cattle pastoralist style. From a series of superimpositions it may be deduced that the paintings of the cattle herders were preceded by several styles of paintings that lack any domesticated fauna with few exceptions of dogs (Zboray 2013). Correlating the sequence of paintings with climatic and archaeological evidence, the cattle pastoralists may be confidently assigned to the 4400-3300 BCE time span, with the preceding cultures spread over a 2000 year period commencing around 6500 BCE (Riemer *et al.* 2017).

However, as nearly half of all rock art sites at Jebel Uweinat are petroglyphs, their study and inclusion in the chronological framework and cultural succession is essential to a full understanding of the early to mid Holocene occupational history of the region.

Unfortunately with the Uweinat petroglyphs the technique (mainly small scale pecked figures) resulted in a much cruder execution than the fine details observable in paintings. It is much harder to distinguish individual styles, especially for those executed on a small scale (like the majority at Uweinat and environs) with scratched or pecked outlines. Thus the study of the Uweinat petroglyphs must address key questions about their subject matter and the significance of their peculiar geographical distribution, rather than the stylistic aspects of depictions.

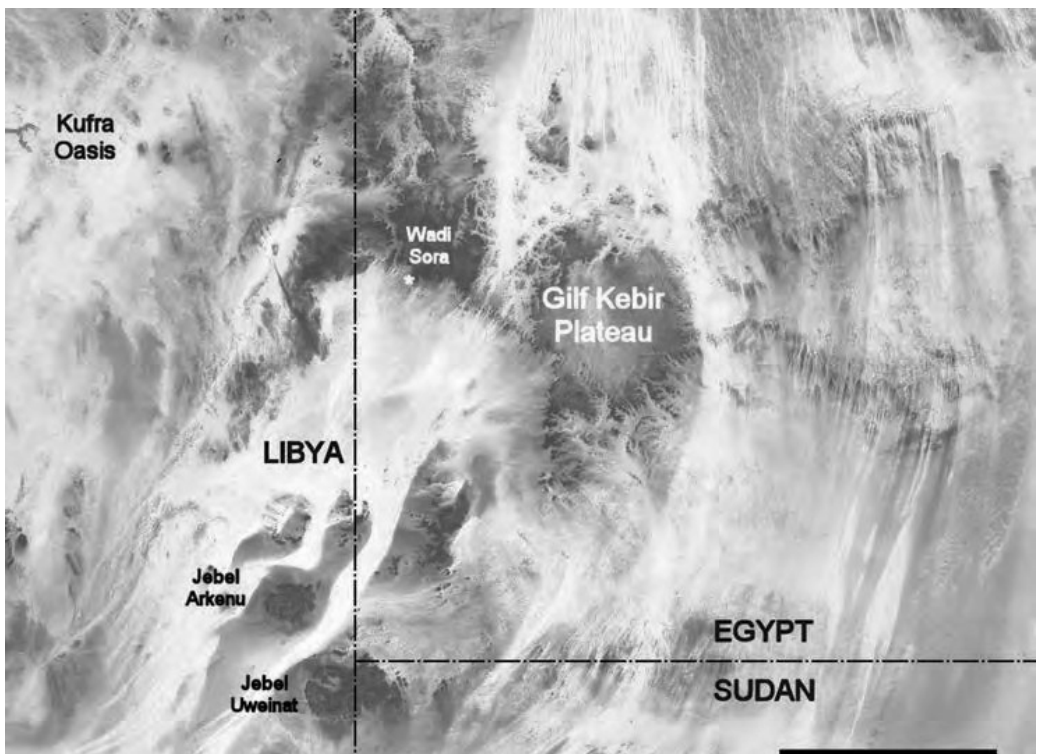


Fig. 1. Map of the central Libyan Desert

In the following, all references to individual sites use the numbering system developed and revised by the author (Zboray 2009) unless otherwise noted.

1. How do giraffe petroglyphs relate to those of the cattle pastoralists?

The most striking elements of Uweinat petroglyphs are the very fine naturalistic depictions of giraffe, sometimes shown in large numbers on the same panel. Ahmed Hassanein was the first to report petroglyphs of giraffe and other wild animals (Fig. 2) at Jebel Uweinat (Hassanein 1925). He observed that the scenes depict giraffe but no camels. With the camel having been introduced to North Africa after 670 BCE (the Assyrian invasion of Egypt), he concluded that the makers of the pictures knew the giraffe, which has long since disappeared from the region, but not the camel, therefore they must be very ancient.

Spurred by Hassanein's discoveries, Prince Kemal el Din visited Uweinat in 1925 and 1926, and documented several more rock art sites. El Din showed the photographs to Abbé Henri Breuil, the greatest prehistoric authority of the times, who identified two distinct periods based on the sub-

ject matter, hunters and pastoralists, and summarily concluded that the oldest, depicting giraffe, bear similarity to South African bushmen petroglyphs associated with a microlithic industry, hence they are “hunters from the upper paleolithic, with some of the others probably historic and recent” (El Dine and Breuil 1928)

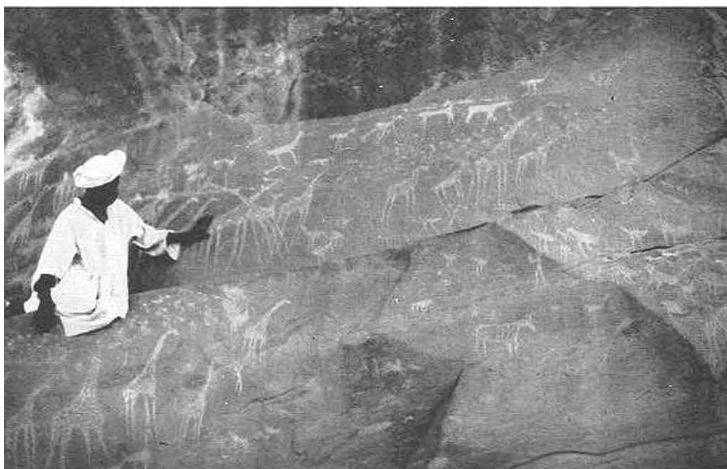


Fig. 2. The “giraffe rock” in Karkur Talh, the first known rock art site at Jebel Uweinat (Hassanein1925)

While Hans Rhotert made the first scientific survey of the petroglyphs and paintings, accompanying the 1933 Almásy/Frobenius expedition, his work remained unpublished till 1952. It was Hans Winkler who published the first monograph on the rock art of the area (1939), after having visited the area with Bagnold in 1938. He too identified two principal styles: the “Uweinat Cattle Breeders” (both paintings and petroglyphs, which he equated with his “Autochthonous Mountain Dwellers” of the Eastern Desert) which post date the “early hunters” who made exclusively petroglyphs of wild animals, predominantly giraffe. He commented that “the many grades of patination in the engravings prove that the occupation of Uweinat lasted for a very long period ... from predynastic until far into historic times.”

Rhotert (1952) accepted Winkler’s general division and chronological sequence, however observed that no evidence may be found of any contact with Egypt. He also noted that some scenes show both cattle and wild fauna, and considered these petroglyphs and paintings to be the result of ‘intense intercourse’ between an indigenous group of hunters and cattle herder immigrants arriving from the south-west (lower Nile basin).

This view was supported by William McHugh who reviewed and published the archaeological material collected by Oliver Myers during the

1938 Mond-Bagnold expedition (McHugh 1971, 1975). He considered the petroglyphs depicting wild fauna to be the oldest, followed by an intermittent stage where both wild fauna and cattle were depicted, to be replaced by petroglyphs showing only cattle, before the artists turned to paintings as their preferred medium. The same views were formulated by Paul Huard and Leone Allard-Huard, with a culture of ancient hunters represented by petroglyphs preceding two distinct groups (petroglyphs and paintings) of pastoralists (Huard and Allard-Huard 1977).

The monograph describing the results of the 1968 Belgian expedition to Jebel Uweinat (Van Noten 1978) substantially expanded the corpus of known paintings and petroglyphs, though unknown to Van Noten, many of the described petroglyphs were already recorded but not published by Winkler (as attested by the Winkler photographs in the Archives of the Egypt Exploration Society, London). Much influenced by McHugh (who reviewed the manuscript) Van Noten recognised five main periods of rock art at Jebel Uweinat. The early period displayed exclusively petroglyphs of wild fauna without any depiction of cattle. This was followed by a period of petroglyphs of several styles, depicting among others long-horned cattle (taken to be domesticated *Bos primigenius*). He estimated this period to date posterior to 4500 B.C. the date of the appearance of these animals in Egypt. The next proposed period was of the paintings, dominated by cattle of *Bos brachyceros* type. His conclusion was that these paintings must post-date the petroglyphs and should be posterior to 2500 B.C. (when short-horned cattle made their debut in Egypt). The fourth recognised period was contemporary with or later than the previous, with depictions of goats replacing cattle, attributed to the increasing aridity of the area. Finally there was a period of protohistoric date, with present-day arid climate fauna and dromedaries shown exclusively on petroglyphs.

All these categorisations and chronologies were based on the *a priori* assumption that any hunter-gatherers must precede pastoralists, and all petroglyphs lacking domesticated fauna must by definition be hunter-gatherers. This view was challenged by Muzzolini (1981, 1995), who considered the absence of large “Ethiopian fauna” (Elephant, rhinoceros) aside giraffe, and the presence of scimitar-horned oryx (a chronological marker for post pastoralist periods in the Central Sahara) proof that the petroglyphs depicting giraffe were of a later date than the paintings, from a period when the climate dried and could no longer support cattle. His argument in part was supported by the scarcity of giraffe (just two examples known at the time) among the paintings.

Le Quellec first visited western Uweinat in 1996, and recorded several new rock art sites, including some paintings depicting giraffe (1998). He argued that as both petroglyphs and paintings represent giraffe and cattle, there is no need to make any distinction, they could be contemporary. He

further argued that since archaeozoological material from the broader Li-byan Desert area confirms the presence of large Ethiopian fauna in the region at the beginning of the Holocene, but no such fauna (except giraffe) is depicted, both petroglyphs and paintings must be relatively recent, not older than 4000 BP, by which time the environment became so dry that only giraffe survived. Berger (2000) however presented that there is no conclusive evidence of large African fauna ever present at Jebel Uweinat itself, and suggested that 4000 BP is more likely a latest possible date for any giraffe depictions.

In light of new discoveries clearly indicating the presence of pre-pastoralist paintings Le Quellec revised his proposed chronology (Le Quellec *et al.* 2005) to permit an older date for the appearance of domesticated fauna and the preceding earlier painting styles, however did not address the position of petroglyphs.

In 2005 (revised in 2009) the author prepared an illustrated catalogue of all known rock art sites in the Gilf Kebir – Jebel Uweinat region, incorporating hundreds of new finds made over the preceding decade. An attempt was made to categorise petroglyphs based on depicted subjects along the lines developed by earlier authors, but incorporating some stylistic elements. This classification split petroglyphs into a group depicting ‘ancient’ wild fauna (primarily giraffe with some ostrich and oryx present), a group depicting cattle, and a group depicting present day arid climate wild fauna only (addax, oryx, ostrich, barbary sheep). However as both Rhotert, McHugh and LeQuellec observed, there are several panels of petroglyphs which depict **both** cattle and giraffe in a similar style, so this classification clearly needs to be revised.

Since 2002 numerous new rock art discoveries were made at Jebel Uweinat, among them several paintings that depict giraffe. Some of them show giraffe among cattle in the same style (eg. EH 21, Menardi Noguera *et al.* 2005, KTW 51, Zboray and Borda 2010), further giving support to Le-Quellec’s observation that the presence of giraffe on any engraving cannot form a basis of differentiating them from cattle pastoralist art.

However giraffe are not only present in cattle pastoralist paintings. They are an integral part of the Wadi Sora style paintings in the Gilf Kebir, and several giraffe hunt scenes are known from miniature style paintings. A unique scene in Wadi Wahesh (WW52) shows a captured giraffe captured by a tether. All these scenes are demonstrably older than the cattle pastoralist paintings (Zboray 2013).

The 1998 discovery of the inscription of Montuhotep (II) Nebhepetre at Jebel Uweinat (Clayton *et al.* 2009) provided a unique dating opportunity for at least some of the local rock art. The inscription itself contains a version of the Royal Nomen (with the Sa Re title inside the cartouche) that was

only in use between the 14th and 39th years of the reign, approximately 2047-2022 BCE (Von Beckerath 1984). On a terrace above the inscription, there are numerous petroglyphs depicting humans and wild fauna, including giraffe, oryx and ostrich (but no cattle). Associated with these petroglyphs, executed in the same style and with similar patination, there are four crude copies of the offering bearers of the Mentuhotep inscription. This association provides strong evidence that giraffe were present in the area until at least 2000 BCE, more than a thousand years after cattle have disappeared (Zboray and Borda 2010).

The corpus of sites and figures provide clear evidence that giraffe existed throughout the rock art producing periods of Jebel Uweinat (except the historic to recent period characterized by crude engravings of camels), and its presence or absence cannot be used as a chronological marker. To answer the original question of how giraffe petroglyphs relate to cattle pastoralist art of the region, the context of giraffe and cattle must be examined in detail.

Of the 347 studied sites with petroglyphs in the Jebel Uweinat region (Zboray 2009), 248 contain giraffe or cattle among their depicted subjects, the balance showing other wild fauna, human figures or camels in any combination. Of these, 130 contain only cattle, 76 only giraffe, and 42 sites display both on the same panel.

Despite the large number of sites, there are only seven instances where giraffe and cattle petroglyphs overlap. In four of these, at sites KT 23/B (Fig. 3), KTN 11/C, KTS 12 and KTS 25, cattle are clearly superimposed over giraffe. However at three other sites, AR 11/B (Fig. 4), KT 39/A and KTE 12/A, giraffe overlies the cattle. In all cases there is very little if any difference in execution technique, style or patination, suggesting that only a short time elapsed between the creation of the lower layers and the superimposed figures.



Fig. 3. Engraved cattle superimposed over a giraffe, site KT 23/B (Karkur Talh, Jebel Uweinat)



Fig. 4. Engraved giraffe superimposed over cattle, site AR 11/B (Jebel Arkenu)

In general there is little ground to make any stylistic distinctions between the majority of giraffe and cattle petroglyphs, there are several panels (e.g. AR 11/B, KT 12/A, KT 26, WW 23) where it is very clear from all details that the cattle and giraffe depicted together are a part of a single composition, created at the same time (Fig. 5).

While the engraved cattle and giraffe figures themselves display no readily distinguishable features, the associated human figures show marked differences, providing some opportunity to group the petroglyphs based on stylistic attributes. 31 sites display characteristic human figures holding what appears to be either a bow, curved stick or spear in one hand, and a solid oval or rectangular object (shield ?) in the other. These figures are almost universally associated with cattle (Fig. 6), though they do appear also on panels where both giraffe and cattle are present. Except for a few crude examples, the majority of these striking human figures occur in Karkur Talh, the principal valley draining the Eastern part of Jebel Uweinat. The author originally used the term "Uweinat warriors" to characterize these petroglyphs (Zboray 2005, 2009), distinguishing them from the cattle pastoralist petroglyphs, however on close scrutiny this distinction is clearly invalid and needs to be abandoned. All the human figures falling into this category are associated with cattle, and the cattle depicted cannot be distinguished from those where no human figures are present. These figures are an integral part of cattle pastoralist petroglyphs.

Another type of human figure, exclusively occurring at nine sites within the main valley of Karkur Talh, appears to be associated with giraffes. The common element is a curved object with a blob at the end held in one hand, with a bow or stick in the other hand. When shown in close association with giraffe, these figures are invariably positioned in front of the heads of the animal. Sometimes similar figures are shown holding a giraffe with a tether tied to the neck (Fig. 7) instead of holding the curved object, thus it is not unreasonable to assume that the object in question may be a stylized lasso (McHugh, 1971). Sometimes these figures are shown with two or three "antennae" on the head, possibly feathers or other hair decoration. In a few instances such figures are shown next to giraffe without any associated objects.

It would be convenient to associate these figures with giraffe and other wild fauna (one such figure is associated with an ostrich, at site KT 76/A), however there are three examples where they are in clear association with cattle, two of them on panels with no giraffe present (Fig. 8). At KT 88/A, one of the finest panel of giraffe petroglyphs, there are several figures with the curved objects (lassos ?) at the heads of giraffe, but there are several figures with spears and oval objects standing next to the giraffe, all appearing to be a part of the same composition and executed in the same style except for the objects held (Fig. 9).



Fig. 5. Cattle and giraffe executed in identical style on the same panel, site KT 12/A (Karkur Talh, Jebel Uweinat)

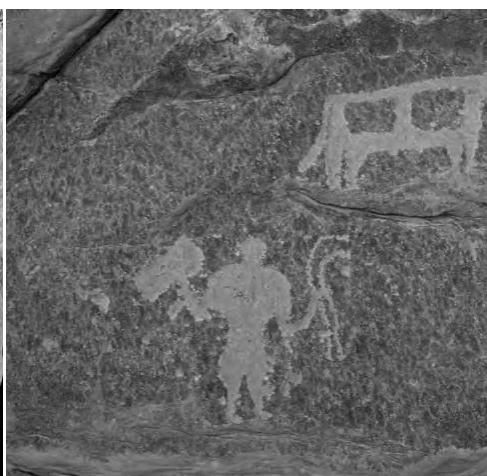


Fig. 6. Human figure associated with cattle holding a rectangular object (shield?) and a pair of curved sticks , site KT 23/A (Karkur Talh, Jebel Uweinat)

As the depiction of cattle being rounded with lassos is known from cattle pastoralist paintings (Zboray and Borda 2013), giraffe have been depicted on numerous cattle pastoralist paintings, and the style and execution of both cattle and giraffe petroglyphs bear strong similarities, it appears that the majority of petroglyphs depicting cattle and giraffe are closely related. The large number of sites showing one or another does suggest a possible shift from an economy dependent primarily on the hunt of wild fauna (giraffe and ostrich) towards cattle pastoralism (as proposed by van Noten 1978, McHugh 1971 and earlier authors), or vice versa (Muzzolini 1981). As giraffe hunt scenes also exist in the miniature style paintings which predate the cattle pastoralist paintings, from the evidence presented so far, both explanations could be possible. The fact that cattle petroglyphs are more numerous than the ones depicting giraffe match the evidence from paintings, suggesting that a population maximum was reached during cattle pastoralist times during the most favorable climatic conditions, however in the case of petroglyphs this could also be interpreted as a progressive decline in population.

Fortunately there are some further pieces of evidence which suggest that the petroglyphs represent a gradual shift from pastoralism to hunting as the primary means of sustenance.

It was already mentioned that a giraffe hunt scene was found near the Mentuhotep inscription , which by association may be securely dated to

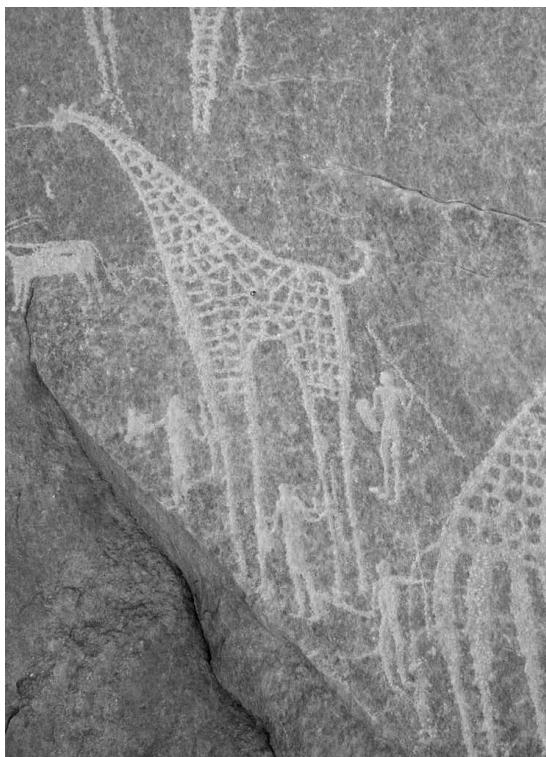


Fig. 9. Human figures associated with giraffe holding oval or rectangular objects (shields?) and spears, otherwise indistinguishable from humans with curved objects (lassos?) on same panel shown on Fig. 7, site KT 88/A (Karkur Talh, Jebel Uweinat)

2000 BCE. These giraffe petroglyphs are in association with a peculiar type of human figures that are very different from the ones described above. Their most striking feature is an object held above the head, with the male sex prominently displayed (Fig. 10). They only occur at three principal sites (plus a few isolated and somewhat doubtful examples) and were the subject of a recent detailed study (De Cola *et al.* 2014). They may also be linked with a unique representation of a donkey train (Cambieri and Peroschi 2010), possibly representing the Egyptian caravan or another trading expedition, where giraffe hunt scenes are also shown (Fig. 11). These representations indicate that giraffe were being hunted by the local inhabitants of Uweinat till at least 2000 BCE, well after the conditions have turned too dry to sustain a pastoralist economy.

Several authors (e.g. Winkler 1939; Rhotert 1952; Le Quellec *et al.* 2005) have observed, that white paintings of cattle represent the last phase of pastoralist art at Uweinat. These terminal pastoralist paintings are very different in style from the mainstream pastoralist paintings. The square bodies and the depiction of the dewlap as several strikes emanating from the neck



Fig. 7. (Left) Human figures associated with giraffe one holding a curved object (lasso?) the other holding a giraffe by a tether to its neck, site KT 86/A. Note oryx under second figure, executed in the same style as many of the cattle depictions (Karkur Talh, Jebel Uweinat)



Fig. 8. (Up) "Horned" human figures associated with cattle holding a curved object (lasso?) KT 32/B (Karkur Talh, Jebel Uweinat)



Fig. 10. Male figures holding unidentified objects above their heads, site KDL 54 (Karkur Delein, Jebel Uweinat)



Fig. 11. Panel with row of pack donkeys (left) and giraffe hunt (right), site KTN 13/C (Northern Karkur Talh, Jebel Uweinat)

are practically identical to cattle depictions on a number of petroglyphs, both with and without giraffe present (Fig. 12). This similarity was already noted by Van Noten, who however did not visit the site with clear superimpositions referred to by Winkler and Rhotert, and – incorrectly – considered these paintings to be the most ancient (Van Noten). Re-examining the relevant sites leaves no question that the white cattle are the last phase of cattle pastoralist paintings (Zboray 2018). This suggests that the cattle (and associated giraffe) petroglyphs were made towards the end of the pastoral period, with the gradual abandonment of painting as an artistic medium.



Fig. 12. Cattle representing the latest phase of cattle pastoralist paintings at site KT 64, and engraved cattle in an identical style at site KT 72/D (Karkur Talh, Jebel Uweinat)

A further supporting evidence for the emerging importance of giraffe as hunted game towards the end of the cattle pastoralist period comes from site KTW 26/B, containing one of the only three unambiguous giraffe hunt scenes known from pastoralist paintings (the others being at sites KT 83/C and EH 21, other giraffe representations on pastoralist paintings lack the clear hunting element), with a pair of archers attacking an adult and young giraffe. This scene may be dated to the penultimate phase of pastoralist paintings (Zboray 2018).

In conclusion, the weight of evidence strongly points towards the bulk of Jebel Uweinat petroglyphs having been executed towards the end of the cattle pastoralist times. Petroglyphs lacking cattle continued to be made by hunters using dogs, with giraffe disappearing from scenes sometime after 2000 BCE, but the depiction of hunting present day arid climate fauna continued well into historic times.

2. Are there any petroglyphs at Uweinat predating the cattle pastoralists ?

While the arguments presented in the previous section demonstrate that

the majority of petroglyphs at Jebel Uweinat and environs are contemporary with, or postdate the cattle pastoralist paintings, the possibility remains that some older petroglyphs do exist, not conforming to the above described patterns.

Just 200 kilometres to the North of Jebel Uweinat, at site WG 21 ("Cave of the Beasts") near Wadi Sora along the Western Edge of the there are several petroglyphs of wild fauna which are overlain by the negative hand stencils which represent the oldest layer of paintings (Le Quellec *et al.* 2005). As the paintings may be dated to the 6500-4500 BCE period, these Wadi Sora petroglyphs are among the very earliest rock art known in the central Libyan Desert. They are not pecked in outline like those at Jebel Uweinat, but are executed in a shallow sunk relief, with the entire body sunk into the rock surface and smoothed (Fig. 13).



Fig. 13. Animal with curved horns, executed in sunk relief, painted over by later negative hand stencils, site WG 21 ("Cave of Beasts", Wadi Sora, Gilf Kebir plateau

Such petroglyphs associated with pre-pastoral paintings are completely absent from Jebel Uweinat. There is only a single panel which may be considered as a candidate for being pre-pastoral, with the central figure being a life-sized soft shelled turtle (*Trionyx triunguis*), accompanied by two smaller giraffe grazing on a tree to the left, and an unidentified horned quadruped (aurochs or buffalo?) quite similar to the illustrated animal with curved horns at site WG 21. The execution technique is sunk relief, similar to the

Wadi Sora engravings, and the patination is well developed (unlike most other Uweinat engravings), making the scene almost invisible except in contour lighting at sunset (Fig. 14).

The presence of *Trionyx* is exceptional, not only in the rock art of Jebel Uweinat, but also in a broader Saharan context (Honoré 2009). Even during the most favorable climatic period of the mid-Holocene, the environment of Jebel Uweinat remained too arid for this aquatic species to exist at the mountain or its immediate vicinity. The closest evidence for the presence of *Trionyx* is the West-Nubian Palaeolake of the Erg Ennedi some 300 kilometres to the south, where turtle bones were found on lake levels associated with “dotted wavy line” ceramics, representing the earliest human settlements in the area (Hoelzmann *et al.* 2001).



Fig. 14. Panel executed in sunk relief, with a pair of giraffe grazing a tree, a large soft-shelled turtle, and an unidentified quadruped, site KT 22 (Karkur Talh, Jebel Uweinat)

Similar dotted wavy line ceramics may be found at Uweinat associated with pre-pastoralist rock art sites (Riemer *et al.* 2017), and 300 kilometres is certainly not an unsurmountable distance for highly mobile small groups of hunter-gatherers. The combined circumstantial evidence does suggest that this unique panel could be the oldest engraving at Uweinat, though being a single example not much more may be deduced.

3. Is there any evidence of depiction of large African fauna (other than giraffe) at Jebel Uweinat ?

Muzzolini (1981) used the lack of any of the “classical” large African fauna (elephant, rhinoceros, hippopotamus) as evidence for the late date of all rock art in the Jebel Uweinat region. However recent discoveries have created a somewhat more ambiguous picture. Among the already referred to petroglyphs in site WG 21 (“Cave of Beasts”) there is one very stylized depiction of an elephant, only recognizable on account of the trunk and tusks as the rest of the body proportions bear no resemblance to a real animal. Two other panels with elephant petroglyphs have been found in the Gilf Kebir (Morelli et al. 2006; Zboray 2008), and one at Jebel es Soda in Libya (Berger et al. 2003). The common trait of all these panels is the association of the elephants with giraffe and ostrich, which on superficial look may not be distinguished from the petroglyphs depicting the same subject (minus elephants) at Jebel Uweinat.

However all the panels depicting elephants exhibit the low relief technique seen on the Cave of Beasts petroglyphs, with a smoothed body and a marked sunk edge as opposed to the lack of perceptible depth and rough pecked outlines and interior of the Uweinat wild fauna petroglyphs. The elephants, while recognizable, do not show natural body proportions, especially the legs are shown as long and thin, contrasting sharply with the fine anatomical detail shown on associated giraffe and ostrich figures. A ready explanation could be that the elephants were drawn based on a verbal description or distant memories, with no living examples to be observed in the closer environment.

While all the discussed examples may be assigned to the pre-pastoral periods, Le Quellec professed to see a figure of an elephant (Le Quellec et al. 2005, fig. 177) on a panel of Uweinat cattle pastoralist paintings at site KM 12 in Karkur Murr, at Jebel Uweinat. However the scene is much weathered, and the identification is highly questionable. The author is of the opinion that the “elephant” is in fact made up of several overlapping and partially effaced cattle.

A supposed rhinoceros was also reported from the Wadi Hamra in the Gilf Kebir (Negro 2001). While its presence would not be surprising in the light of the recent elephant finds, the identification is very doubtful. Having observed the figure several times under different lighting conditions (site WH 2), the author is of the opinion that the crude pecked figure represents some other quadruped (possibly cattle), the “horn” being simply a flaw in the rock rather than part of the man-made figure.

As such one must agree with the conclusion of Berger (2000) that large African fauna were completely absent from the Jebel Uweinat region throughout the rock art producing periods.

4. Were the petroglyphs depicting cattle made by the same people who created the cattle paintings ?

Paintings of cattle, sometimes by the hundreds, often accompanied by the characteristic elongated human figures dominate the rock art landscape of Jebel Uweinat. The sheer numbers and proportions (337 sites out of a total of 414 paintings at Uweinat) suggest that the cattle pastoralist paintings represent the peak of human occupation at Jebel Uweinat. As the majority of petroglyphs also depict cattle, but in a seemingly very different style, the question arises whether the two were made by the same or different people.

It may be argued that the differences observable in the depictions of cattle (different body postures, different coat patterns, etc.) may be explained by the choice of different mediums, however also the depicted human figures and their accessories are very different.

While there is a considerable variation in the style of depicting human figures among the Uweinat cattle pastoralists (Zboray 2018), a number of common accessories unique to the Uweinat pastoralists confirm a clear cultural continuity (MenardiNoguera and Zboray 2011; Zboray 2013). The cattle pastoralists who made the paintings had well established conventions of representing the human body, clothing and accessories. Some recent and partially unpublished finds confirm that these conventions were applied in petroglyphs too. At Jebel Soda Berger and Le Quellec found two engraved figures (ER 2, Berger et al. 2003, ER 3/A; Le Quellec et al. 2005) carrying the characteristic “tailed quiver cum utility bag” which is a standard accessory of the Uweinat cattle pastoralists. At site SU 17 a scene shows a couple of elongated human figures in the characteristic body posture (both elbows bent) together with cattle, and a group of similar archers hunting a giraffe (Fig. 15, echoing the scene at KTW 26/B), while near Wadi Wahesh a recent find (Zboray and Borda 2013) again shows a typical cattle pastoralist couple in a posture seen on dozens of paintings. These rare but clearly recognizable examples indicate that the artists of the paintings could reproduce the same style in petroglyphs, just their preference was for paintings.

In contrast the characteristic figures holding spear and oval/rectangular objects (shield ?) and the curved objects (lassos ?) have no parallels in any of the cattle pastoralist paintings. The single apparent example at site KT 57 on close scrutiny is revealed to hold a bow in one hand and a bunch of arrows in the other, rather than the rectangular or oval solid object depicted on petroglyphs.

The marked differences in depicting humans on paintings and on the majority of petroglyphs suggest that the latter were made by a group of people with different artistic conventions and cultural traditions. As it had already been demonstrated that the cattle petroglyphs are related to a small subset

of paintings representing the final stages of painting activity at Uweinat, one may tentatively conclude that sometime near the end of the cattle pastoralist period a new group arrived to Jebel Uweinat, possibly after a temporary abandonment by the earlier pastoralists who made the majority of the paintings.



Fig. 15. Giraffe hunt scene, the style and body posture of archers with elongated bodies are similar to depictions of archers on cattle pastoralist paintings, site SU 17 (South Uweinat)

This hypothesis is supported by observing the rock art of Uweinat in a broader regional context. While the Uweinat cattle pastoralist paintings have no direct stylistic parallels elsewhere, both Huard (Huard and Leclant 1972) and Le Quellec (2005) commented on the resemblance of some Jebel Uweinat petroglyphs to those attributed to the Nubian C Group in the Nile Valley, and there are also some recently discovered cattle pastoralist petroglyphs at Bir Nurayet (Bobrowski *et al.* 2013) in North-eastern Sudan which show a marked similarity to the engraved cattle at Uweinat. Perhaps most intriguingly, a large panel of petroglyphs near the town of Bardai in the central Tibesti Mountains depicts a herd of cattle accompanied by a group of people appearing to hold the same curved objects (lassos ?) as some of the figures at Jebel Uweinat (Staewen and Striedter 1987).

While these similarities and the archaeological context have not yet been studied in any detail, it is entirely conceivable to envision a period of in-

creased migration around 3500-2500 BCE when the gradual onset of present-day aridity forced pastoralist people to seek out new, more favorable grazing areas, while returning to the marginal desert regions during short wetter interludes (much as the Tibu people returned to Uweinat periodically after years of better rain in the first half of the last century).

4. What is the significance of the geographical distribution ?

While there are roughly the same number of paintings as petroglyphs at Jebel Uweinat and environs, this even distribution hides a very differing geographical spread: petroglyphs are only found along the sides and low terraces bordering the lower courses of the wadis (dry riverbeds) draining the eastern (sandstone) parts of Jebel Uweinat, in the lower sections of wadis and around the northern and eastern (sandstone) perimeter of Jebel Arkenu, and along the perimeter of smaller sandstone inselbergs on the surrounding plains. In contrast, paintings may be found in shelters practically everywhere on Jebel Uweinat and the surrounding other massifs, with concentrations in the upper sections of wadis, reaching up to the highest areas of the sandstone plateaus forming the elevated parts of both Uweinat (Fig. 16) and Arkenu mountains.

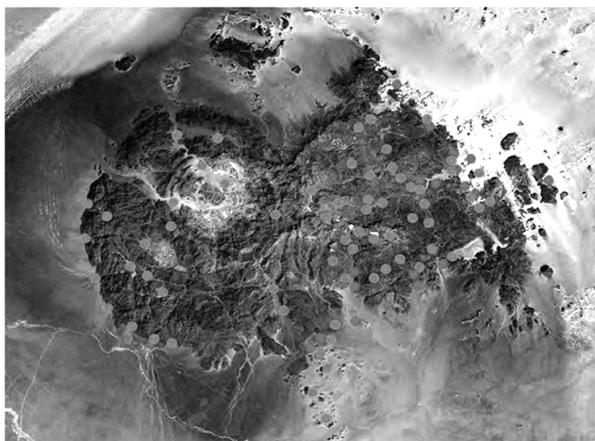


Fig. 16. Satellite map of Jebel Uweinat showing the distribution of principal painting (red dots) and petroglyph (blue dots) localities

Petroglyphs are completely lacking in the western (granite) part of Uweinat, and also from the lesser granite massifs. This (at least in part) may be explained by the hardness of the rock medium, which could not be worked with the technology available to the prehistoric inhabitants. The only exception may be found in the main valley of Jebel Arkenu, where phonolite outcrops among the more prevalent granites provided suitable softer surfaces (workable with granite flakes of greater hardness) for some panels of petroglyphs, all conforming to the pattern of being in the lower section of the wadi.

Significantly, if one examines the geographical distribution of the latest phase of the cattle pastoralist paintings, the style of which matches those of the cattle petroglyphs, one may observe a complete overlap with the distribution of petroglyphs, providing further support that these late paintings and the petroglyphs were made by the same people.

As both the classical cattle pastoralist paintings and the late paintings/petroglyphs appear to have been made at living sites (supported by considerable surface scatters of ceramics and artifacts at undisturbed localities), from the differences in geographical distribution one may infer that the people who made the petroglyphs simply did not inhabit the higher elevations. As it is extremely unlikely that two separate groups of pastoralists with different artistic traditions could have coexisted at Uweinat, the only alternative explanation is a temporal succession. It is an attractive hypothesis to see this distribution as evidence for an ongoing deterioration of environmental conditions, with all of the mountain exploited and inhabited during the climatic optimum (corresponding to the peak of occupation), followed by a period where only the main valleys and the alluvial plains offered suitable living areas.

Examining the distribution of camel petroglyphs provides some further support to this hypothesis. These latest additions to the Jebel Uweinat rock art repertoire may only be found in the most favored central part of the lower Karkur Talh (which is also the area richest in prehistoric petroglyphs, still supporting a vestige arid savanna vegetation with acacia groves, the largest such vegetation patch in a 500 kilometre radius), and along a path linking this valley with the single remaining permanent spring in Karkur Murr. They are always in close association with historic and modern Tibou settlements and artifacts. One may infer that by the time the camel petroglyphs were made, the rest of the mountain and the smaller valleys could no longer support human settlement.

Summary

From the demonstrated evidence it may be deduced that following a long period of successive artistic traditions expressing themselves through paintings, the abundant cattle/ giraffe petroglyphs represent the final pastoralist phase at Jebel Uweinat (possibly following a break in settlement), when only the fringes of the mountain offered suitable habitat and resources, the rest of the massif was no longer inhabited.

As conditions deteriorated the cattle disappeared from the petroglyphs, however giraffe and other game remained to be exploited. This continued (without cattle) at least until ~2000 BCE. At some point giraffe too disappeared, however the hunting based subsistence (aided by dogs) continued along the fringes of the mountain.

The final phase of human settlement at Jebel Uweinat is characterized by

crude petroglyphs depicting camels and associated humans. Some of these completely lack patination, and are undoubtedly historic, probably made by Tibu nomads periodically exploiting the area.

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